CLAIMS

1. A method for manufacturing a semiconductor physical quantity sensor of electrostatic capacitance type, in which mutually facing peripheral areas (referred to as bonding areas) of an insulating substrate and a semiconductor substrate are contacted for anodic bonding, while both substrates have an anodic bonding voltage applied therebetween so as to be integrated by anodic bonding, with a fixed electrode being formed on a bonding face-side surface of the insulating substrate, and with a movable electrode being formed on a bonding face-side surface of the semiconductor substrate,

the method comprising:

a first step of forming, before the anodic bonding, an equipotential wiring to short-circuit the fixed electrode to the movable electrode on the bonding face-side surface of the insulating substrate inside the bonding area;

a second step of performing the anodic bonding; and

a third step of cutting and removing the equipotential wiring after the anodic bonding.

2. The method for manufacturing a semiconductor physical quantity sensor of electrostatic capacitance type according to claim 1, wherein in the third step, the equipotential wiring is cut by laser irradiation allowed to pass through from the insulating substrate.

3. The method for manufacturing a semiconductor physical quantity sensor of electrostatic capacitance type according to claim 1, wherein in the third step, a voltage is applied between conductive film layers

exposed at bottom portions of respective through-holes which are provided in the insulating substrate for the fixed electrode and the movable electrode so as to cause a current to flow in the equipotential wiring, and the equipotential wiring is cut by heat generated based thereon.

4. The method for manufacturing a semiconductor physical quantity sensor of electrostatic capacitance type according to claim 2 or claim 3, wherein in the first step, the equipotential wiring has a reduced wiring width at a cutting location thereof.

5. A method for manufacturing a semiconductor physical quantity sensor of electrostatic capacitance type, in which mutually facing peripheral areas (referred to as bonding areas) of an insulating substrate and a semiconductor substrate are contacted for anodic bonding, while both substrates have an anodic bonding voltage applied therebetween so as to be integrated by anodic bonding, with a fixed electrode being formed on a bonding face-side surface of the insulating substrate, and with a movable electrode being formed on a bonding face-side surface of the semiconductor substrate,

the method comprising:

a first step of forming, before the anodic bonding, an equipotential wiring to short-circuit the fixed electrode to the movable electrode on the bonding face-side surface of the semiconductor substrate inside the bonding area;

a second step of performing the anodic bonding; and

a third step of cutting and removing the equipotential wiring after the anodic bonding.

6. The method for manufacturing a semiconductor physical quantity sensor of electrostatic capacitance type according to claim 5, wherein in the third step, the equipotential wiring is cut by laser irradiation allowed to pass through from the insulating substrate.

7. The method for manufacturing a semiconductor physical quantity sensor of electrostatic capacitance type according to claim 5, wherein in the third step, a voltage is applied between conductive film layers exposed at bottom portions of respective through-holes which are provided in the insulating substrate for the fixed electrode and the movable electrode so as to cause a current to flow in the equipotential wiring, and the equipotential wiring is cut by heat generated based thereon.

8. The method for manufacturing a semiconductor physical quantity sensor of electrostatic capacitance type according to claim 6 or claim 7, wherein in the first step, the equipotential wiring has a reduced wiring width at a cutting location thereof.

9. A semiconductor physical quantity sensor of electrostatic capacitance type, in which mutually facing peripheral areas (referred to as bonding areas) of an insulating substrate and a semiconductor substrate are contacted for anodic bonding, while both substrates have an anodic bonding voltage applied therebetween so as to be integrated by anodic bonding, with a fixed electrode being formed on a bonding face-side surface of the insulating substrate, and with a movable electrode being formed on a bonding face-side surface of the semiconductor substrate, wherein:

an equipotential wiring to short-circuit the fixed electrode to the movable electrode is formed on the bonding face-side surface of the

insulating substrate or the semiconductor substrate inside the bonding area; and

the equipotential wiring has such a structure that can be cut by applying a laser irradiation or a current to the equipotential wiring after the anodic bonding.